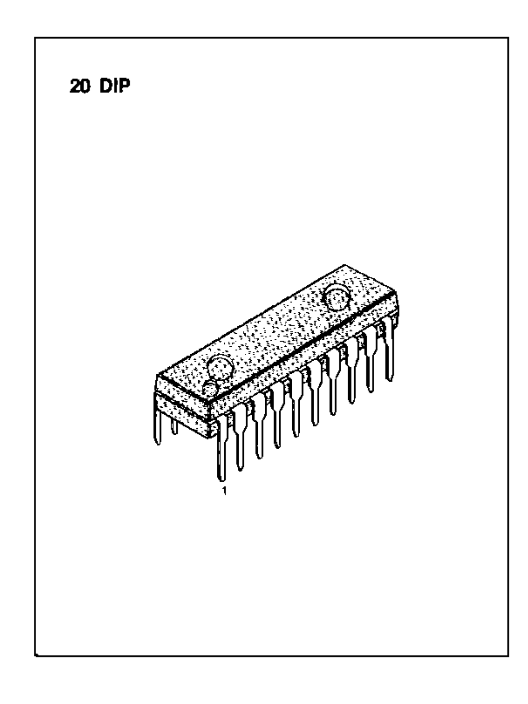
DEFLECTION PROCESSOR FOR CRT DISPLAY

The KA2138 is a monolithic integrated circuit encapsuled in a 20 dual-in-line package designed for vertical, horizontal deflection signal processing for a CRT display.
This IC can be connected to the KA2131 (for vertical output use) to form a deflection processing that uses every requirement for a CRT display.



FUNCTIONS

[Vertical Block]

- Vertical oscillator & Ramp generator
- Sampling type DC voltage control within retrace time

[Horizontal Block]

- Horizontal oscillator & AFC
- X-ray protector
- AFC sawtooth wave generator
- Horizontal pulse duty setting
- Horizontal phase shifter

FEATURES

- Vertical pull-in range 20Hz permits non-adjusting at vertical synchronizing 50Hz or 60Hz.
- Good vertical linearity because DC supplying at the vertical output stage is subjected to sampling type control during retrace time
- The horizontal oscillation frequency is stable from 15KHz to 100KHz.
- The horizontal display can be shifted right or left
- The horizontal/vertical synchronizing pulse input can be used intact regardless of the difference in pulse palarity and pulse width.
- The AFC feedback sawtooth wave can be obtained by simply applying a flyback pulse to the IC as a trigger pulse
- Any duty of horizontal pulse can be set

ORDERING INFORMATION

Device	Package	Operating Temperature
KA2138N	20 DPI	-20 ~ +70°C

BLOCK DIAGRAM

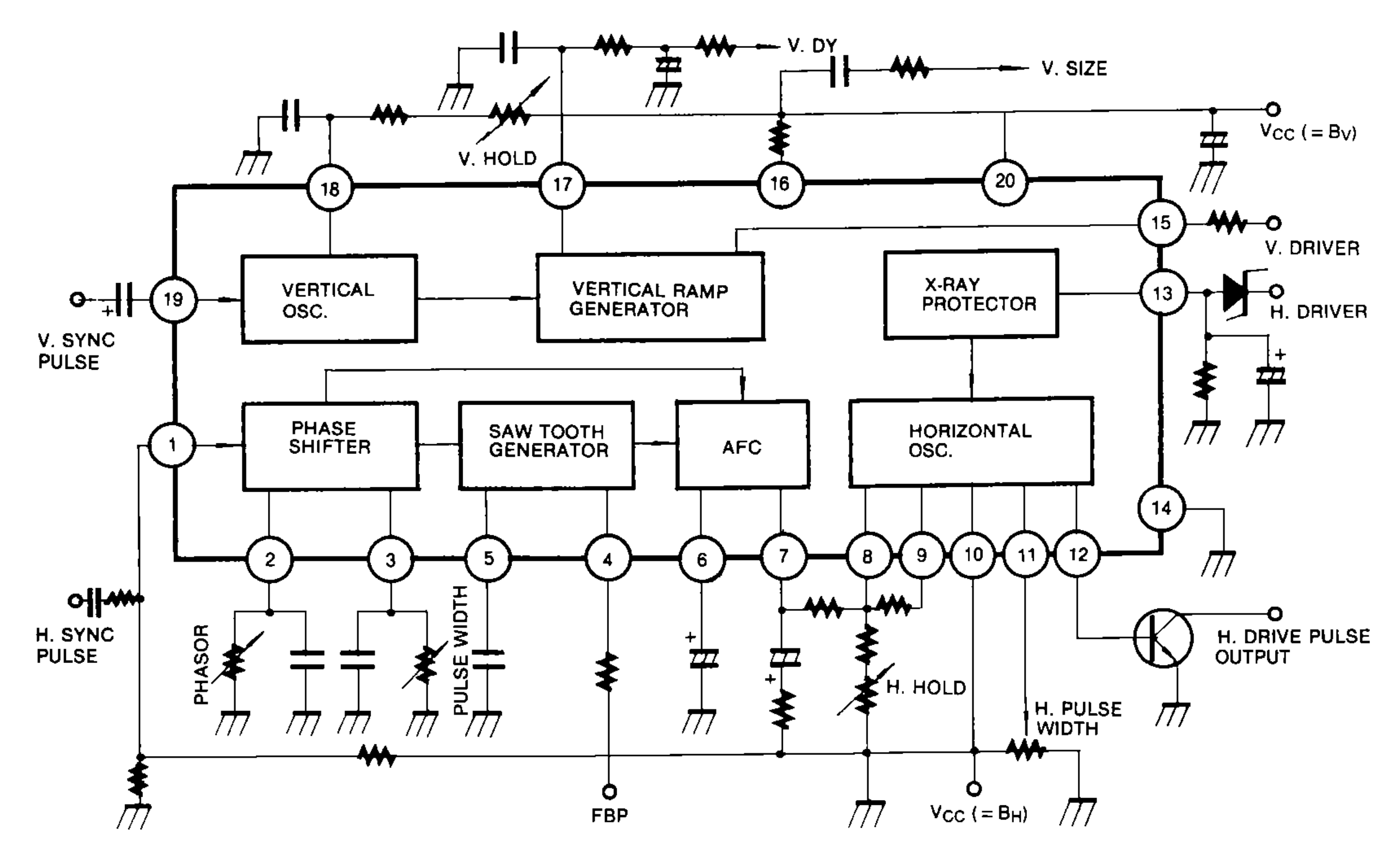


Fig. 1

ABSOLUTE MAXIMUM RATINGS ($T_a = 25°C$)

Characteristic	Symbol	Value	Unit
Supply Voltage	$V_{10(max)}$, $V_{20(max)}$	14	V
Power Dissipation	P_D	780	mW
Operating Temperature	T_{OPR}	−20 ~ +70	°C
Storage Temperature	T_{STG}	−55 ~ +150	°C

RECOMMENDED OPERATING CONDITIONS ($T_a = 25°C$)

Characteristic	Symbol	Min	Typ	Max	Unit
Supply Voltage	V_{10}, V_{20}	9	12	13.5	V
Vert. Pulse Voltage	V_V	2.0	5.0	6.0	$V_{p\text{-}p}$
Horiz. Pulse Voltage	V_H	2.0	5.0	6.0	$V_{p\text{-}p}$

ELECTRICAL CHARACTERISTICS ($V_{CC10} = V_{CC20} = 12V$, $T_a = 25°C$)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	I_{10}	$V_{CC10} = 12V$	12		30	mA
	I_{20}	$V_{CC20} = 12V$	5		12	mA
Vertical Part						
Pull-In Range	$f_{V (PULL)}$	Synchronizing pulse frequency 60Hz	21	23		Hz
Free-Running Frequency	f_V		55	60	65	Hz
Frequency Drift with Supply Voltage	$\Delta f_V/V_{CC}$	$V_{20} = 12 \pm 1V$, 60Hz at 12V	−0.1		0.1	Hz
Center Voltage Control Threshold Level			3.8		4.4	V
Frequency Drift with Ambient Temperature	$\Delta f_{t(V)}$	Ta = −10 to +60°C	−0.028		0.028	Hz/°C
Oscillation Start Voltage	$V_{OSC(V)}$				4.0	V
Driver Amplification Factor	ΔA_V		12		18	dB
Horizontal Part						
Oscillation Start Voltage	$V_{OSC(H)}$				4.0	V
Free-Running Frequency	f_H	$f_H = 15.734KHz$	−750		750	Hz
AFC DC Loop Current	I_{AFC}		±0.85		±1.6	mA
Frequency Drift with Supply Voltage	$\Delta f_H/V_{CC}$	$V_{10} = 12 \pm 1V$, 15.734KHz at 12V	−50		50	Hz
Frequency Drift with Ambient Temperature	$\Delta f_V/T_A$	Ta = −10 to +60°C	−2.9		2.9	Hz/°C
Comparision Wave Shaping Input Voltage	V_4		0.6		0.9	V
X-Ray Protector Starting Voltage	V_{13}		0.5		0.8	V
Horizontal Drive Current	I_{12}		6.0		12.0	mA

TYPICAL APPLICATION CIRCUIT

14″ color monitor (f_V: 60Hz, f_H = 15.734KHz)

